

COURSE OUTLINE

1. GENERAL DESCRIPTION

School	School of Plant Sciences		
Department	Forestry and Natural Environment Management		
Studies level	Undergraduate		
Course Code	614	Semester	6 ^o
Course Title	Forest Entomology		
INDEPENDENT TEACHING ACTIVITIES		Teaching hours per week	ECTS
Lectures		2	5
Lab exercises		2	
Course total		4	
Course type	Deepening / consolidating knowledge of the specialty of the scientific field		
Prerequisite courses:	No		
Language Of Teaching & Examination:	Greek		
The Course is Offered to Erasmus Students	No		
Course webpage (URL)	https://oeclass.aua.gr/eclass/courses/5289/		

2. LEARNING OUTCOMES

Learning Outcomes
<p>The aim of the course is to teach the elements of insect morphology and systematics, as well as the understanding of the ecology and control methods of forest insects. Only insects that attack established forest trees will be taught.</p> <p>The goal of this course is to provide knowledge of the biology, classification, ecology, and population dynamics of forest insect populations. In addition, students will be taught how to monitor forest insects, gaining knowledge about the damage they cause. Emphasis will be placed on the management of forest insects and their major groups, including leaf-eating, phloem-eating and wood-eating insects. Upon successful completion of the course, students are expected to be able to identify the most important forest insects and recommend measures for their management in forest areas.</p>
General skills
<ul style="list-style-type: none"> • Search, analysis and synthesis of data and information, using the necessary technologies. • Autonomous work. • Group work. • Respect for the natural environment. • Adaptation to new situations. • Decision-making. • Promotion of free, creative and deductive thinking.

3. COURSE CONTENT

Lectures (2 hours per week)

- Basic entomology concepts.
- Elements of insect morphology and systematics.
- Insect morphology. External anatomy and internal morphology of insects.
- Development and metamorphosis of insects.
- Systematics of insects.
- Damage from forest insects.
- Forest insect ecology - Forest insect populations - Causes of insect population overgrowth.
- Environmental resistance.
- Tree infestation, vulnerability, attractiveness, resistance. Use of resistant trees.
- Control of damaging forest insects by mechanical means, Biological control, Insect sterilization by radiation, Chemical control.
- Use of insect growth regulators.
- Toxicity of insecticides.
- Behavioral semiochemicals.
- Pheromones – Exorhormones.
- Antitrophic substances.
- Methods of indirect control-Control by forestry measures.
- Mixed or total control or management of insect pests.
- Nematodes.
- Root-root soil insects.
- Insects affecting spruce (Abies).
- Insects affecting spruce (Picea).
- Insects affecting cypress (Cupressus).
- Insects affecting pine (Pinus).
- Insects affecting oak (Quercus).
- Insects affecting walnut (Juglans).
- Insects affecting chestnut (Castanea).
- Insects affecting beech (Fagus).
- Insects affecting sycamore (Platanus).
- Insects affecting alder (Alnus).
- Insects affecting elm (Ulmus).
- Insects affecting wood in use.
- Termites (Isoptera).

Lab exercises (2 hours per week)

Taking and analyzing samples. Insect identification. Use of specialized software to analyze the impact of insects on stands and individual trees.

4. TEACHING & LEARNING METHODS - EVALUATION

TEACHING METHODS	In the classroom, in the Laboratory and in wooded areas adjacent to the Department's facilities. A combination of educational methods and techniques are applied, which aim at enhancing the active participation of students and which give the greatest possible effectiveness to face-to-face teaching:
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	Enriched teaching, questions - answers, discussion, exercises, working groups, laboratory application.														
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use, flexibly and alternatively, of supervisory media that make use of ICT: multimedia PC, video data projector, internet, asynchronous tele-education platform (e-class). Use of video for a better understanding of the theory. Communication with students via e-mail and one-to-one meetings for the preparation of laboratory exercises.														
ORGANISATION OF TEACHING	<table> <tr> <th><i>Activity</i></th><th><i>Semester workload</i></th></tr> <tr> <td>Lectures</td><td>40</td></tr> <tr> <td>Lab exercises</td><td>15</td></tr> <tr> <td>Educational visits</td><td>20</td></tr> <tr> <td>Personal study and literature analysis</td><td>30</td></tr> <tr> <td>Personal - Group assignments</td><td>20</td></tr> <tr> <td>COURSE TOTAL</td><td>125</td></tr> </table>	<i>Activity</i>	<i>Semester workload</i>	Lectures	40	Lab exercises	15	Educational visits	20	Personal study and literature analysis	30	Personal - Group assignments	20	COURSE TOTAL	125
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STUDENT EVALUATION	<p>I. Written final examination on the theory of the course with a multiple-choice test, with negative grading for wrong answers (50% of the final grade). The 20% of the grade may come from students' presence and participation during the lecture. Another 30% may come from an individual assignment. Students can also choose to give only final exams for the 100% of the grade on a test with multiple choices, complemented by answers to critical and short answer questions.</p> <p>II. Assessment of the laboratory course will be done during the semester with assessment of one individual assignment to be handed in on predetermined dates (50% of the grade), while the other 50% will come from the final written examination on insect identification using multimedia.</p>														

5. RECOMMENDED LITERATURE

<ol style="list-style-type: none"> 1. Ciesla, W., 2011. Forest entomology: a global perspective. John Wiley & Sons. 2. Coulson, R.N. and Witter, J.A., 1984. Forest entomology: ecology and management. John Wiley & Sons. 3. Dajoz R. 2000. Insects and Forests: The Role and Diversity of Insects in the Forest Environment. Lavoisier. 4. Wermelinger, B., 2021. Forest Insects in Europe: Diversity, Functions and Importance. CRC Press. 5. Αβτζής, Ν., Αβτζής, Δ., Βιδάκης, Κ., 2013. Δασικά Έντομα της Ελλάδας. 6. Καιλίδης Δ., 2002. Δασική εντομολογία και ζωολογία. Εκδόσεις Χριστοδουλίδη. 7. Μαρκάλας Σ., 2010. Δασική Εντομολογία. Σ. Γιαχούδης. 8. Τζανακάκης, Ε.Μ., Κωβαίος, Σ.Δ., 2018. Εντομολογία. University Studio Press.
